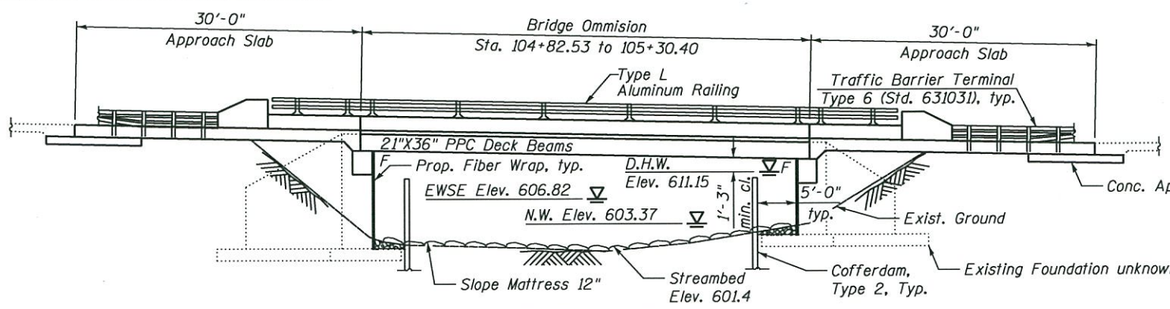
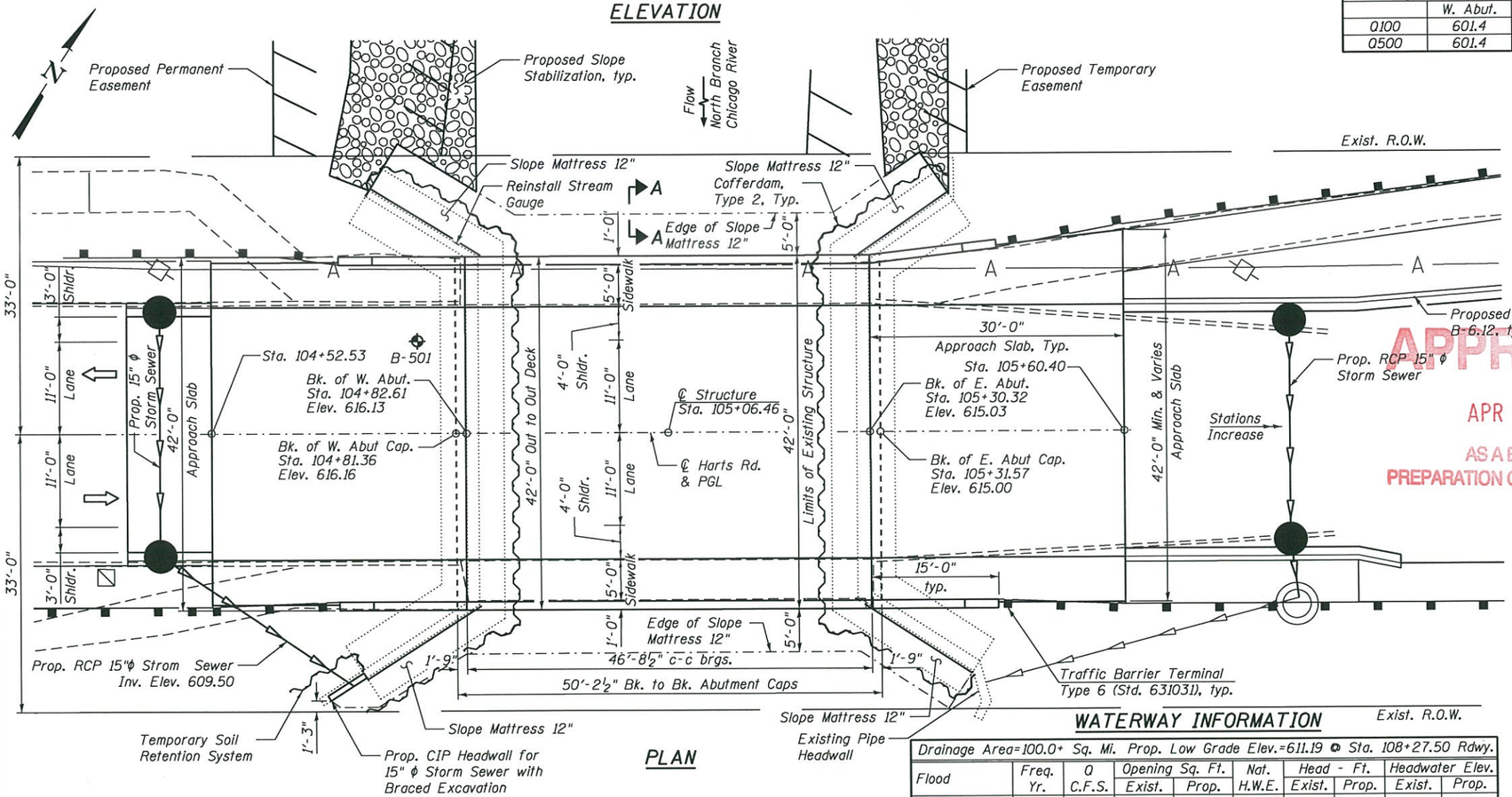
Benchmark: Chiseled square on the northwest wingwall. Elev. 616.25.

Existing Structure: Existing S.N. 016-0726 carrying Harts Road over North Branch of Chicago River was originally built in 1921 as a single span reinforced concrete slab bridge under Construction Route SA3-A, Section 66-15D. The structure was reconstructed in 1970 as PPC deck beams under Contract 28227 as Construction Route CHS 47, Section 1970-15BR. The structure was resurfaced in 2001 under contract 83547 as Construction Route FAU 3519 Section 99-00100-00-WR. The existing structure is a single span PPC deck beam bridge with bituminous concrete wearing surface and waterproofing membrane system. The structure is 47'-8½" back to back of closed abutments and 42'-0" out to out of deck including 5'-0" raised sidewalk with parapet and L-type aluminum railing on each side of the roadway. There is no skew with the roadway alignment. Traffic shall be detoured during construction.

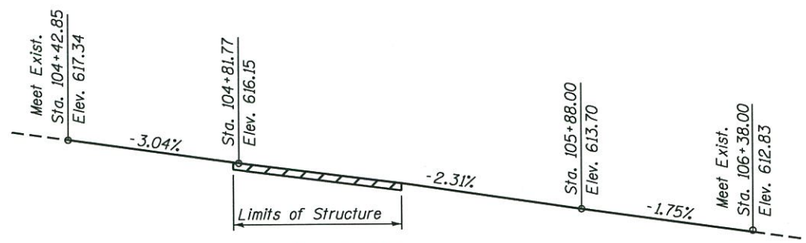
No Salvage.



ELEVATION



PLAN



PROFILE GRADE

(Along ℄ Harts Rd.)

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)		
	W. Abut.	E. Abut.
Q100	601.4	601.4
Q500	601.4	601.4

DESIGN SPECIFICATIONS

For Existing Abutment & Southwest Headwall Construction
2002 AASHTO Standard Specifications
for Highway Bridges, 17th Edition

For all other New Construction
2012 AASHTO LRFD Bridge Design
Specifications, 6th Edition with 2013 interims

HIGHWAY CLASSIFICATION

F.A.U. Rte. 3519 (Harts Rd)
Functional Class: Major Collector
ADT: 4450 (2009); 5000 (2030)
ADTT: 4%
DHV: 360 (2009); 400 (2030)
Design Speed: 40 m.p.h.
Posted Speed: 35 m.p.h.
Two-Way Traffic
Directional Distribution: 50/50

SEISMIC DATA

Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient = 0.038g
Site Coefficient = 1.2

DESIGN STRESSES

EXISTING STRUCTURE

f'c = 1,400 psi (Substructure)
fy = 20,000 psi (Reinforcement)

DESIGN STRESSES

FIELD UNITS (NEW CONSTRUCTION)

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED CONCRETE DECK BEAMS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (½" ϕ low lax strands)
fpbt = 201,960 psi (½" ϕ low lax strands)
fy = 60,000 psi (Reinforcement)

LOADING HL-93

No future wearing surface will be allowed.

APPROVED
APR 02 2014
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

WATERWAY INFORMATION

Exist. R.O.W.

Drainage Area=100.0+ Sq. Mi. Prop. Low Grade Elev.=611.19 @ Sta. 108+27.50 Rdwy.

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater Elev. Exist.	Headwater Elev. Prop.
Peak	2	2350	336	336	608.93				
	10	2851	408	408	610.44	0.81	0.81	611.25	611.25
Design	50	3650	440	440	611.15	1.17	1.17	612.32	612.32
Base	100	3936	451	451	611.39	1.22	1.22	612.61	612.61
Overtopping	±10	2851	408	408	610.44	0.81	0.81	611.25	611.25
Max. Calc.	500	4900	486	486	612.15	1.70	1.70	613.85	613.85

Notes:
The existing structure is scour critical.
Boring B-501 was taken in 1994.

LOCATION SKETCH

GENERAL PLAN
HARTS ROAD OVER NORTH BRANCH CHICAGO RIVER
F.A.U. RTE. 3519
SEC. 66-B
COOK COUNTY
STATION 105+06.46
STRUCTURE NO. 016-0726

Accurate GROUP, INC.

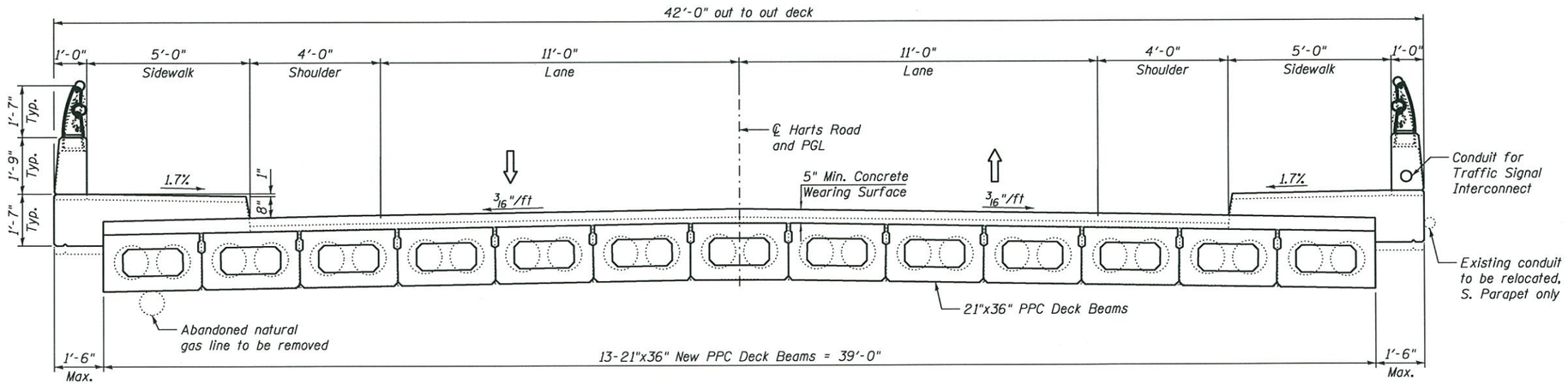
USER NAME = sapent	DESIGNED - SAT	REVISED
	CHECKED - JW	REVISED
PLOT SCALE = 16@ '1' / in.	DRAWN - SAT	REVISED
PLOT DATE = 3/13/2014	CHECKED - JW	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 2 SHEETS

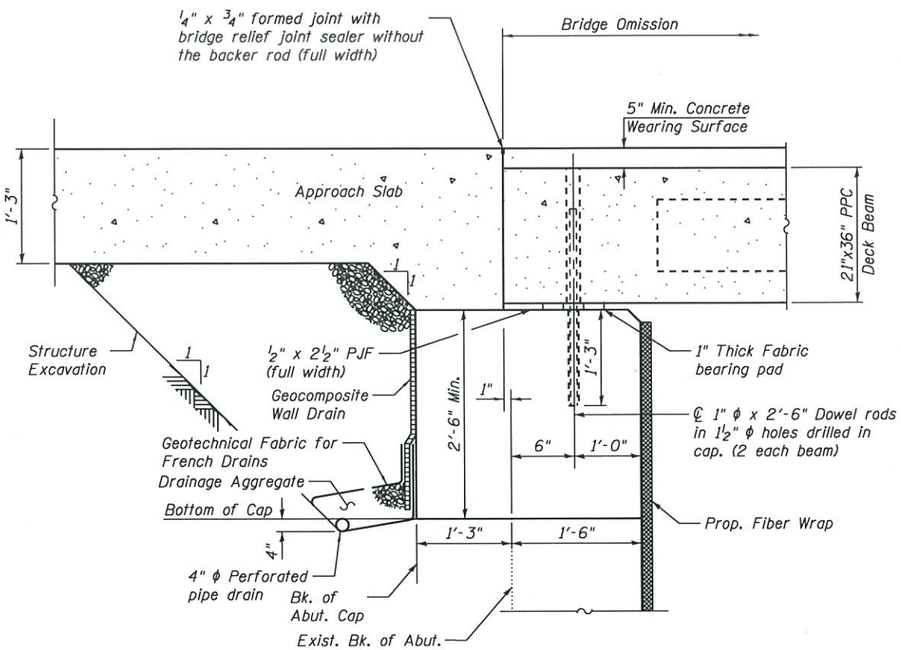
F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3519	66-B	COOK	2	1
		CONTRACT NO. 60X41		
	ILLINOIS FED. AID PROJECT			

FILE NAME = D:\Engineering\LiveProjects\13803 IDOT DUPJ3803s - WO 2 Contract No. 60X41\CADD\CADD Sheets\Structure\TSAL\016-0726-60X41-01-GPE.dgn



DECK CROSS SECTION

(Looking East)



SECTION THRU ABUTMENT

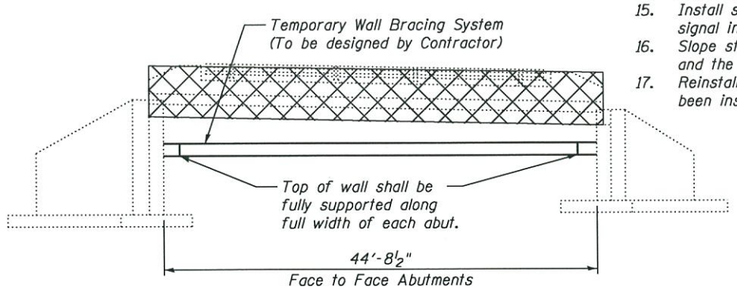
APPROVED

APR 02 2014

AS A BASIS FOR
PREPARATION OF DETAILED PLANS

SCOPE OF WORK

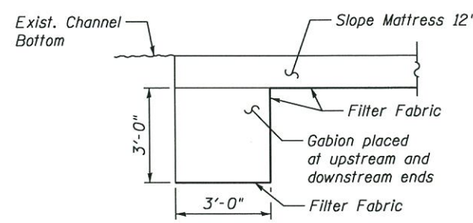
1. Install Temporary Wall Bracing System and excavate behind the abutment wall.
2. Remove abandoned natural gas line from existing structure.
3. Remove existing 3" Bituminous Overlay, existing 21"x36" PPC Deck Beams and Approach Slabs.
4. Install Cofferdam, Type 2 at both abutments and all four wingwalls.
5. Remove and reconstruct abutment seat of both abutments.
6. Install Temporary Soil Retention System at southwest wingwall.
7. Remove existing concrete headwall at the southwest wingwall and replace with a C.I.P. concrete headwall in the southwest ditch.
8. Perform structural repair of concrete on both of the abutments and all four wingwalls and then install Fiber Wrap on face of both of the abutments and all four wingwalls.
9. Remove Cofferdam, Type 2.
10. Install Slope Mattress 12" along the channel bottom under the bridge from face to face of abutments, along wingwalls and 5'-0" outside of edge of deck.
11. Install new 21"x36" PPC Deck Beams.
12. Dowel Rods for new deck beams shall be installed and the grout shall be cured prior to removal of the Temporary Wall Bracing System.
13. Install 5" min. Concrete Wearing Surface.
14. Construct approach slabs.
15. Install sidewalks and parapets on both the sides of the roadway. Embed traffic signal interconnect conduit in south parapet.
16. Slope stabilization methods shall be used to the North (upstream) side of the bridge and the southwest side of the bridge.
17. Reinstall Stream Gauge after structural repair of concrete and Fiber Wrap has been installed on northwest wingwall.



TEMPORARY WALL BRACING SYSTEM

LEGEND

Removal of Existing Superstructrue



SECTION A-A

Accurate GROUP, INC.	USER NAME = sapent	DESIGNED - SAT	REVISED
		CHECKED - JW	REVISED
	PLOT SCALE = 4.0000 ' / in.	DRAWN - SAT	REVISED
	PLOT DATE = 3/13/2014	CHECKED - JW	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTION
STRUCTURE NO. 016-0726
SHEET NO. 2 OF 2 SHEETS

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3519	66-B	COOK	2	2
		CONTRACT NO. 60X41		
	ILLINOIS	FED. AID PROJECT		

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